

CLAIMS

What is claimed is:

1. A transdermal formulation for improving memory and cognitive function comprising:

5 a) an amount of huperzine sufficient to achieve a huperzine blood plasma level of from about 0.1 to about 30 ng/ml;

b) an inert carrier; and

10 c) a permeation enhancer selected from the group consisting of: fatty acids, fatty acid esters, fatty alcohols, fatty acid esters of lactic acid, fatty acid esters of glycolic acid, amides, amines, pyrrolidones, glycerol trimesters, terpenes, surfactants, complexing agents, biologics, their salts, and mixtures thereof.

15 2. A transdermal formulation as set forth in claim 1, wherein the blood plasma level to be achieved is from about 1 to about 15 ng/ml.

20 3. A transdermal formulation as set forth in claim 1, wherein the blood plasma level of from about 0.1 to about 30 ng/ml is to be achieved within about 0.5 to about 10 hours after administration of the formulation.

4. A transdermal formulation as set forth in claim 1,
wherein a single dosage is sufficient to sustain the
huperzine blood plasma level of from about 0.1 to 30 ng/ml
for a duration of at least about 3 days.

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5. A transdermal formulation as set forth in claim 1,
wherein a single dosage is sufficient to sustain the
huperzine blood plasma level of from about 0.1 to about 30
ng/ml for a duration at least about 7 days.

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6. A transdermal formulation as set forth in claim 1, w
wherein the huperzine is a member selected from the group
consisting of huperzine A, huperzine B, huperzine X, and
salts, analogs, derivatives, prodrugs, and mixtures
thereof.

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7. A transdermal formulation as set forth in claim 6,
wherein the huperzine is huperzine A.

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8. A transdermal formulation as set forth in claim 6,
wherein the huperzine is huperzine B.

9. A transdermal formulation as set forth in claim 6,
wherein the huperzine is huperzine X.

10. A transdermal formulation as set forth in claim 1,
5 wherein the formulation is a topical formulation.

11. A transdermal formulation as set forth in claim 1,
wherein the formulation is an adhesive matrix patch.

10 12. A transdermal formulation as set forth in claim 1,
wherein the formulation is a liquid reservoir patch.

13. A transdermal formulation as set forth in claim 1,
wherein said huperzine further comprises a huperzine hybrid
15 compound.

14. A transdermal formulation as set forth in claim 13,
wherein said huperzine hybrid compound is a huperzine-
tacrine hybrid.

20 15. A transdermal formulation as set forth in claim 1,
further comprising a hormone.

22. A transdermal formulation as set forth in claim 1,
further including a positive health benefit imparting
substance selected from the group consisting of: vitamins,
minerals, amino acids, herbal and botanical extracts, anti-
5 oxidants, and mixtures thereof.

23. A transdermal formulation as set forth in claim 22,
wherein the positive health benefit imparting substance is
a vitamin.
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24. A transdermal formulation as set forth in claim 22,
wherein the positive health benefit imparting substance is
a mineral.

25. A transdermal formulation as set forth in claim 22,
wherein the positive health benefit imparting substance is
an amino acid.
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26. A transdermal formulation as set forth in claim 22,
wherein the positive health benefit imparting substance is
an herbal extract.
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27. A transdermal formulation as set forth in claim 22,
wherein the positive health benefit imparting substance is
a botanical extract.

5 28. A transdermal formulation as set forth in claim 22,
wherein the positive health benefit imparting substance is
an anti-oxidant.

10 29. A transdermal formulation for improving memory and
cognitive function consisting essentially of:
an amount of huperzine sufficient to achieve a
huperzine blood plasma level of from about 0.1 to about 30
ng/ml admixed with an inert carrier.

15 30. A method of improving memory and cognitive function
comprising transdermally administering an amount of
huperzine sufficient to achieve a huperzine blood plasma
level of from about 0.1 to about 30 ng/ml.

20 31. A method as set forth in claim 30, wherein the
transdermal administration of huperzine is sufficient to
achieve a huperzine blood plasma level of from about 1 to
about 15 ng/ml.

32. A method as set forth in claim 30, wherein the huperzine blood plasma level is achieved within about 0.5 to about 10 hours after initiation of the huperzine administration.

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33. A method as set forth in claim 30, wherein the huperzine blood plasma level is sustained for a duration of at least 3 days from a single transdermal administration.

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34. A method as set forth in claim 30, wherein the huperzine blood plasma level is sustained for a duration of at least 7 days from a single transdermal administration.

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35. A method as set forth in claim 30, wherein the huperzine further comprises a huperzine hybrid compound.

36. A method as set forth in claim 35, wherein huperzine hybrid compound is a huperzine-tacrine hybrid.

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37. A method as set forth in claim 30, further comprising a hormone.

38. A method as set forth in claim 37, wherein the hormone is a member selected from the group consisting of estrogens, androgens, melatonin, serotonin, DHEA, phosphatidyl serine, and mixtures thereof.

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39. A method as set forth in claim 38, wherein the hormone is estrogen.

40. A method as set forth in claim 30, further comprising
10 a treatment agent selected from the group consisting of antipsychotics, anxiolytics, antidepressants, and mixtures thereof.

41. A method as set forth in claim 40, wherein the
15 treatment agent is an antipsychotic.

42. A method as set forth in claim 40, wherein the treatment agent is an anxiolytic.

20 43. A method as set forth in claim 40, wherein the treatment agent is an antidepressant.

44. A method as set forth in claim 30, further comprising
co-administering a positive health benefit imparting
substance selected from the group consisting of: vitamins,
minerals, amino acids, herbal and botanical extracts, anti-
oxidants, and mixtures thereof.

45. A method as set forth in claim 44, wherein the
positive health benefit imparting substance is a vitamin.

46. A method as set forth in claim 44, wherein the
positive health benefit imparting substance is a mineral.

47. A method as set forth in claim 44, wherein the
positive health benefit imparting substance is an amino
acid.

48. A method as set forth in claim 44, wherein the
positive health benefit imparting substance is an herbal
extract.

49. A method as set forth in claim 44, wherein the
positive health benefit imparting substance is a botanical
extract.

50. A method as set forth in claim 44, wherein the positive health benefit imparting substance is an anti-oxidant.

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